

WHAT IS CLAIMED IS:

1. An isolated nucleic acid comprising a nucleotide sequence selected from the group consisting of:

(i) the nucleotide sequence of SEQ ID NO: 1; (ii) the nucleotide sequence of SEQ ID NO: 2; (iii) a degenerate variant of the nucleotide sequence of SEQ ID NO:2; (iv) a nucleotide sequence that encodes a polypeptide having the sequence of SEQ ID NO: 3; (v) a nucleotide sequence that encodes a polypeptide having the sequence of SEQ ID NO: 3 with conservative amino acid substitutions; (vi) at least 17 contiguous nucleotides of SEQ ID NO:4; (vii) at least 17 contiguous nucleotides of SEQ ID NO:6; (viii) a degenerate variant of the nucleotide sequence of SEQ ID NO:6; (viii) a nucleotide sequence that encodes a polypeptide having the sequence of SEQ ID NO:7; (ix) the complement of any one of (i) - (viii).

2. The isolated nucleic acid of claim 1 wherein said nucleic acid, or the complement of said nucleic acid, encodes a polypeptide which interacts with Rho and/or PDZ domain-containing proteins.

3. The isolated nucleic acid of claim 1, wherein said nucleic acid, or the complement of said nucleic acid, is expressed in kidney, colon, adrenal, adult liver, bone marrow, brain, fetal liver, heart, hela, lung, placenta, prostate and skeletal muscle.

4. The isolated nucleic acid molecule of any one of claims 1 - 3, wherein said nucleic acid

molecule is operably linked to one or more expression control elements.

5. A replicable vector comprising an isolated nucleic acid molecule of any one of claims 1 - 3.

6. A replicable vector comprising an isolated nucleic acid molecule of claim 4.

7. The isolated nucleic acid molecule of any of claims 1 - 3, attached to a substrate.

8. A host cell transformed to contain the nucleic acid molecule of any one of claims 1 - 3, or the progeny thereof.

9. A host cell transformed to contain the nucleic acid molecule of claim 4, or the progeny thereof.

10. A host cell transformed to contain the nucleic acid molecule of claim 5, or the progeny thereof.

11. A host cell transformed to contain the nucleic acid molecule of claim 6, or the progeny thereof.

12. A method for producing a polypeptide, the method comprising: culturing the host cell of claim 8 under conditions in which the protein encoded by said nucleic acid molecule is expressed.

13. A method for producing a polypeptide, the method comprising: culturing the host cell of claim 9 under conditions in which the protein encoded by said nucleic acid molecule is expressed.

14. A method for producing a polypeptide, the method comprising: culturing the host cell of claim 10 under conditions in which the protein encoded by said nucleic acid molecule is expressed.

15. A method for producing a polypeptide, the method comprising: culturing the host cell of claim 11 under conditions in which the protein encoded by said nucleic acid molecule is expressed.

16. An isolated polypeptide produced by the method of claim 12.

17. An isolated polypeptide produced by the method of claim 13.

18. An isolated polypeptide produced by the method of claim 14.

19. An isolated polypeptide produced by the method of claim 15.

20. An isolated polypeptide selected from the group consisting of: (a) an isolated polypeptide comprising the amino acid sequence of SEQ ID NO: 3; (b) an isolated polypeptide comprising a fragment of at least 6 amino acids of SEQ ID NO:7; and (c) an isolated polypeptide according to (a) or (b) in which at least

95% of deviations from the sequence of (a) or (b) are conservative substitutions.

21. An isolated antibody or antigen-binding fragment or derivative thereof, the binding of which can be competitively inhibited by an isolated polypeptide having the sequence of SEQ ID NO:7, or at least 6 contiguous amino acids thereof.

22. A method of identifying binding partners for a polypeptide according to claim 20, the method comprising:

contacting said polypeptide to a potential binding partner; and

determining if the potential binding partner binds to said polypeptide.

23. The method of claim 22, wherein said contacting is performed *in vivo*.

24. A method of modulating the expression of a nucleic acid according to claim 1, the method comprising:

administering an effective amount of an agent which modulates the expression of a nucleic acid according to claim 1.

25. A method of modulating at least one activity of a polypeptide according to claim 20, the method comprising: administering an effective amount of an agent which modulates at least one activity of a polypeptide according to claim 20.

26. A transgenic non-human animal modified to contain a nucleic acid molecule of any one of claims 1 - 3.

27. A transgenic non-human animal modified to contain a nucleic acid molecule of claim 4.

28. A transgenic non-human animal modified to contain a nucleic acid molecule of claim 5.

29. A transgenic non-human animal modified to contain a nucleic acid molecule of claim 6.

30. A transgenic non-human animal unable to express the endogenous orthologue of the protein of claim 20.

31. A method of diagnosing a disease caused by mutation in human GRBP2, comprising:

detecting said mutation in a sample of nucleic acids that derives from a subject suspected to have said disease.

32. A method of diagnosing or monitoring a disease caused by altered expression of human GRBP2, comprising:

determining the level of expression of human GRBP2 in a sample of nucleic acids or proteins that derives from a subject suspected to have said disease, alterations from a normal level of expression providing diagnostic and/or monitoring information.

33. A pharmaceutical composition comprising the nucleic acid of any one of claims 1 - 3 and a pharmaceutically acceptable excipient.

34. A pharmaceutical composition comprising the nucleic acid of claim 4 and a pharmaceutically acceptable excipient.

35. A pharmaceutical composition comprising the nucleic acid of claim 5 and a pharmaceutically acceptable excipient.

36. A pharmaceutical composition comprising the nucleic acid of claim 6 and a pharmaceutically acceptable excipient.

37. A pharmaceutical composition comprising the polypeptide of claim 20 and a pharmaceutically acceptable excipient.

38. A pharmaceutical composition comprising the antibody or antigen-binding fragment or derivative thereof of claim 21 and a pharmaceutically acceptable excipient.

39. A purified agonist of the polypeptide of claim 20.

40. A purified antagonist of the polypeptide of claim 20.

41. A pharmaceutical composition comprising the agonist of claim 39.

42. A pharmaceutical composition comprising the antagonist of claim 40.

43. A method for treating or preventing a disorder associated with decreased expression or activity of human GRBP2, the method comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of claim 37 or 41, or a pharmaceutical composition comprising a nucleic acid of claim 1 in a pharmaceutically acceptable carrier.

44. A method for treating or preventing a disorder associated with increased expression or activity of human GRBP2, the method comprising administering to a subject in need of such treatment an effective amount of the pharmaceutical composition of claim 38 or 42.

45. A diagnostic composition comprising the nucleic acid of claim 1, said nucleic acid being detectably labeled.

46. A diagnostic composition comprising the polypeptide of claim 20, said polypeptide being detectably labeled.

47. A diagnostic composition comprising the antibody or antigen-binding fragment or derivative thereof of claim 21.

48. The diagnostic composition of claim 47, wherein said antibody or antigen-binding fragment or derivative thereof is detectably labeled.

49. The diagnostic composition of any one of claims 45 - 48, wherein said composition is further suitable for *in vivo* administration.

50. A microarray wherein at least one probe of said array is a nucleic acid according to any one of claims 1 - 3.

51. A method for detecting a target nucleic acid in a sample, said target being a nucleic acid of any one of claims 1 - 3, the method comprising:

a) hybridizing the sample with a probe comprising at least 30 contiguous nucleotides of a sequence complementary to said target nucleic acid in said sample under hybridization conditions sufficient to permit detectable binding of said probe to said target, and

b) detecting the presence or absence, and optionally the amount, of said binding.

52. A fusion protein, said fusion protein comprising a polypeptide of claim 20 fused to a heterologous amino acid sequence.

53. The fusion protein of claim 52, wherein said heterologous amino acid sequence is a detectable moiety.

54. The fusion protein of claim 53, wherein said detectable moiety is fluorescent.

55. The fusion protein of claim 52, wherein said heterologous amino acid sequence is an Ig Fc region.



56. A method of screening for agents that modulate the expression of human GRBP2, the method comprising:

contacting a cell or tissue sample believed to express human GRBP2 with a chemical or biological agent, and then

comparing the amount of human GRBP2 expression with that of a control.